



AF (JW)
HM-685

Patent

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Christoph Klein, et al.
Serial No: 10/563,264
Filed: September 18, 2006
For: DEVICE FOR PRODUCING A HOT-ROLLED THERMAL STRIP,
ESPECIALLY MADE OF STRIP-TYPR CONTINUOUS CASTING
MATERIAL
Examiner: Caitlin A. Fogarty
Art Unit: 1793
Mail Stop: Appeal Brief-Patents
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

BRIEF ON APPEAL

S I R:

Applicant hereby petitions for a three-month extension of time for filing the present Brief on Appeal. Enclosed is a credit card payment form in the amount of \$1110 in payment of the government fee for a three-month extension of time.

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01 FC:1253
02 FC:1402

1110.00 OP
540.00 OP

This appeal is taken from the Final Action mailed February 3, 2009.

Real Party in Interest

The real party in interest in the above-identified application is:

SMS Demag AG
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Germany

Related Appeals and Interferences

There are no related appeals or interferences of which Applicants are aware regarding the above-identified application.

Status of Claims

Claims 1 and 4-7 are pending in the application and subject to the present appeal. Claims 2 and 3 have been canceled. Claims 1 and 4-7 stand rejected under 35 U.S.C. 103(a) over U.S. Patent No. 4,698,897 to Frommann et al. in view of U.S. Patent No. 6,024,808 to Kondo et al.

Status of Amendments After Final Rejection

No amendment after final rejection was filed.

Summary of the Claimed Subject Matter

The claimed invention will now be summarized with reference to the drawings being made by way of reference numerals.

Independent Claim 1

The claimed invention recites an installation for producing hot-rolled steel strip, which comprises at least one continuous

casting machine, at least one shear, at least one soaking furnace, a descaler, possibly a roughing train, a finishing train including a multi-stand rolling mill or Steckel mill, a roller table with a cooling zone, and at least one coiling reel for the hot strip (see page 10, lines 3-8). The casting line GL and the pass line WL are arranged parallel or approximately parallel to each other in such a way that the casting direction and the rolling direction are oriented essentially opposite each other (see page 9, lines 2-4) and are connected with each other by a reheating furnace AO (see page 9, lines 4-5). The reheating furnace AO is a rocker-bar hearth furnace or a walking-beam furnace (see page 10, lines 1-2). The distance between the casting line GL and the pass line WL is designed in such a way that a sufficient residence and buffering time for the thin slabs in the reheating furnace AO is guaranteed (see page 9, lines 10-14). The reheating furnace AO is designed to hold at least three slabs and a maximum of twelve slabs (see page 9, lines 9-10).

Grounds of Rejection to be Reviewed on Appeal

The following ground is presented for review:

Whether claims 1 and 4-7 are unpatentable under 35 U.S.C. 103(a) over Frommann et al. in view of Kondo et al.

Argument**The Rejection of Claims 1 and 4-7 under 35 U.S.C. 103(a):**

In rejecting claim 1, the Examiner stated the following:

"With respect to instant claim 1, col. 1 lines 42-48, col. 3 line 56-col. 4 line 62, Fig. 3, and Fig. 4 of Frommann disclose an arrangement for producing hot-rolled steel strip. The arrangement comprises at least one continuous casting machine, at least one shear (2), at least one soaking furnace (4, 6, 8), a descaler (13), possibly a roughing train (12), a finishing train (7) (multi-stand rolling mill or Steckel mill-see col. 3 lines 7-29), a roller table having a cooling zone, and at least one coiling reel (9) for the hot strip. The casting line and the pass line are arranged in parallel or approximately parallel to each other in such a way that the casting direction and the rolling direction are oriented essentially opposite each other and are connected with each other by a reheating furnace (4) (see Fig. 3).

Frommann differs from instant claim 1 because it does not specifically teach that the reheating furnace is a rocker-bar hearth furnace or a walking-beam furnace. However, col. 2 line 51 of Frommann teaches that the reheating furnace should be of the rotary variety. It would have been obvious to one of ordinary

skill in the art that the rotary furnace of Frommann would perform the same function of reheating the steel as the walking-beam furnace of the instant invention because it is well known in the art, as evidenced by col. 6 lines 26-29 of Kondo, that a rotary furnace and a walking beam furnace are functional equivalents in terms of reheating steel. See MPEP 2144.06.

In regards to instant claim 2, col. 2 lines 30-51 of Frommann disclose that the distance between the casting line and the pass line is designed so that sufficient residence and buffer time for the thin slabs in the reheating furnace is guaranteed.

Regarding instant claim 3, col. 3 lines 56-68 of Frommann teach that the reheating furnace can hold one or more coiled castings. This overlaps with the range recited in instant claim 3."

The Examiner then went on to state the following: "The primary reference, Frommann also deals with steel slabs as disclosed in the abstract and col. 4 line 63-col. 5 line 11 which teaches that thin steel slab ingots are coiled, cut, uncoiled, and rolled down to thin strip material."

The patent to Frommann et al. discloses a method of making hot roller steel strip from continuously cast ingots.

The patent to Kondo et al. discloses a stainless steel pipe manufacturing method.

The Examiner combined these references in determining that claims 1-7 would be unpatentable over such a combination. Applicant submits that neither of these references, nor their combination, teach an installation for producing hot-rolled steel

strip as in the present invention. The primary reference deals with steel strip, whereas the present invention deals with steel slabs. There is an important difference between the handling of strip and slabs. While it is easy to design a product line with sufficient residence and buffer time when having two coiler stations, it is difficult to design a line for slabs.

Coiling and uncoiling takes time and the transportation of the coils through a reheating furnace adds additional time before further proceeding, i.e. entering the roughing train or finishing train. One must also consider that the equalization of the temperature through the coil takes a great deal of time as well.

The transportation of slabs between the casting line and the mills must be carried out in a shorter time. As the reheating of the slabs combined with the equalization of temperature is necessary, the complete reduction line must be designed taking into consideration these parameters. The presently claimed invention provides a solution to these problems, and specifically, the distance between the casting line and the pass line is designed in such a way that a sufficient residence and buffering time for the thin slabs in the reheating furnace is guaranteed. Such a construction is not taught by the references.

Furthermore, the Examiner does not recognize the mistake in Frommann, namely, the steps "coiled, cut, uncoiled" since it is not possible to cut the coil. The correct method is shown in Fig. 4 of Frommann, i.e. the continuously cast slab ingot is cut into a length that will result in a desired coil weight when coiled. Thereafter, the coil is uncoiled and rolled down. col. 4 line 63 to col. 5 line 11 is also contrary to the Examiner's interpretation because this passage discloses nothing about slabs, but only about coils and the desired coil weight.

For the above reason the combination of Frommann et al. and Kondo et al. does not teach the present invention as recited in claim 1.

Dependent Claims 4-7:

Dependent claims 4-7 stand and fall with independent claim 1.

Conclusion

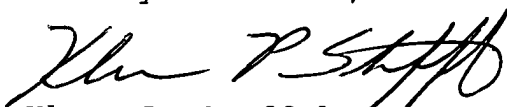
Accordingly, in view of the above considerations, it is Applicant's position that the Examiner's rejection of claims 1

and 4-7 under 35 U.S.C. 103(a) is in error and should be reversed.

The amount of \$540.00 to cover the fee for filing an appeal brief is being charged as per attached form PTO-2038. Any additional fees or charges required at this time in connection with this application should be charged to Patent and Trademark Office Deposit Account No. 11-1835.

Respectfully submitted,

By



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Dated: January 5, 2010

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, PO Box 1450 Alexandria, VA 22313-1450, on January 5, 2010.

By:


Klaus P. Stoffel

Date: January 5, 2010

Claims Appendix

1. An installation for producing hot-rolled steel strip, which comprises at least one continuous casting machine, at least one shear, at least one soaking furnace, a descaler, possibly a roughing train, a finishing train including a multi-stand rolling mill or Steckel mill, a roller table with a cooling zone, and at least one coiling reel for the hot strip, wherein the casting line and the pass line are arranged parallel or approximately parallel to each other in such a way that the casting direction and the rolling direction are oriented essentially opposite each other and are connected with each other by a reheating furnace, and by the fact that the reheating furnace is a rocker-bar hearth furnace or a walking-beam furnace, wherein the distance between the casting line and the pass line is designed in such a way that a sufficient residence and buffering time for the thin slabs in the reheating furnace is guaranteed, the reheating furnace being designed to hold at least three slabs and a maximum of twelve slabs.

2. (Canceled)

3. (Canceled)

4. The installation in accordance with claim 1, wherein the casting line consists of one or more casting machines or several cast strands.

5. The installation in accordance with claim 1, wherein the casting and rolling plane are preferably arranged at the same height.

6. The installation in accordance with claim 1, wherein at least one continuous furnace is arranged between the casting machine and the reheating furnace.

7. The installation in accordance with claim 1, wherein at least one continuous furnace is arranged between the rolling mill and the reheating furnace.

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Evidence Appendix

N.A.

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Related Proceedings Appendix

There are no related proceedings.